UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/995,916	11/28/2001	Huub Van Aert	27500-14	1168

7590 11/04/2003

Joseph T. Guy Ph.D
Nexsen Pruet Jacobs & Pollard LLP
201 W. McBee Avenue
Greenville, SC 29603

EXAMINER	
ZALUKAEVA, TATYANA	
ART UNIT	PAPER NUMBER
1713	10

DATE MAILED: 11/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/995,916	AERT ET AL.	
	Examiner	Art Unit	
	Tatyana Zalukaeva	1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 September 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3-5 and 13-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3-5 and 13-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 22, 2003 has been entered.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 3-5 and 13-35 are pending. At this time the lection of species is not requested, however, if further amended, claims may be subjected to an election of species requirement with regard to species of monomers and surfactants.

4. Claims 3-5, 13-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishi et al (U.S. 5,525,670) in view of "Polymer Chemistry" by Raymond B. Seymour et al, second edition, pages 337-339.

Nishi discloses a coating composition comprising an acrylic resin particles as component (D) (col.6, lines 45-47). This component is made by emulsion polymerization of monomers (I) and (II) in water (col. 8, lines 12). The list of monomers suitable as monomer (I) is presented in col. 6, lines 65-67 and col. 7, lines 1-4. The list of monomer (II) is given in col.7, lines 10-31. The monomers of the instant claims 22 and 23 are clearly named by Nishi.

Nishi further teaches that anionic cationic or nonionic surfactant having a methacryloyl group or allyl group is used (col. 8, lines 39-49, especially lines 48, 49).

Nishi further teaches that molecular weight can be adjusted using mercaptan compounds or other compounds, **such as α-methylstyrene dimer as a chain transfer agent.** (col. 8, lines 49-52).

With regard to the concentration of surfactant, Nishi provides an example of emulsion polymerization in col. 16, **wherein 5.6 parts of RA-1022 (surfactant) were used in a load comprising approximately 100 parts of monomers** (see examples 12 and 13). This provides the concentration of surfactant as instantly claimed of at least 0.5% by weight.

Although Nishi discloses the concentrations and the presence of components as instantly claimed, he does not specifically indicate that the concentration of surfactant is **below** twice its critical micelle concentration. It is noted here that such limitation can also be read as a zero concentration.

Seymour in the book of "Polymer Chemistry", second edition, pages 337-339 provides the theoretical basis of emulsion polymerization. In a typical recipe suitable **for**

any type of emulsion polymerization, the amounts are 100 g of monomer, such as styrene, 180 g of water**, 5 g of sodium stearate (soap)** and 0.5 g of potassium persulfate (page 337, 4-th paragraph). The concentration of surfactant is, therefore, the same as in Nishi, and the same as instantly claimed. The book further provides rationale why the concentration of surfactant **should be below critical micelle concentration** (page 337 and 339).

Since from the statistical view point only one half of micelles will contain growing chains at one time, and therefore, a person skilled in the art of emulsion polymerization at the time the invention was made would have found it obvious that the concentration as used by Nishi and as taught by Seymour is adjusted as a concentration lower than twice CMC (critical micelle concentration) in order to maintain balance between the rate of polymerization and conversion with the reasonable expectation of success.

5. Claims 3-5, 13-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Obayashi et al (U.S.6,048,924)

Obayashi discloses a water born resin (B) as a part of a composition (abstract) obtained by emulsion polymerization (col. 2, lines 60-62). Representative examples of vinyl monomers for emulsion polymerization are acrylic, methacrylic acid, maleic, fumaric and the like (col. 8, lines 58-61), also derivatives of (meth)acrylic acid (col. 9, lines 5-11 and 15-25), as well as aromatic vinyl compounds (col. 9, lines 25,26) and vinyl carboxylates (col. 9, lines 33-35). Usually the polymer is prepared by emulsion polymerization , wherein in order to control molecular weight dimer chain transfer

agents are used, such as **alpha-methylstyrene dimer** and the like. (col. 12, lines 17-20), and all possible surfactants, including those anionic, nonionic, and cationic are used (col. 12, lines 33-40). Of special interest are so called reactive surfactants, having unsaturated double bonds (col. 12, lines 41-43). The amount of surfactant is usually 0.2-10 parts per 100 parts of unsaturated monomers (col. 12, lines 44-48), which reads on at least 0.5% by weight as instantly claimed. In examples of Table 5 in col. 26, the concentrations of surfactant are within the ranges as instantly claimed.

Obayashi discloses emulsion polymerization of identical monomers, and suggests all possibilities of dimer chain transfer agents, as instantly claimed, as well as surfactants of the nature and in the amount as instantly claimed. Obayashi does not present an embodiment wherein all conditions are met at once. However, a person skilled in the art based on generic teaching of Obyashi and guided by a knowledge available to those skilled in the art would have found it obvious, motivated by clear suggestion of Obayashi to include the dimer chain transfer agent, as taught by Obyashi in one of his embodiments in order to regulate molecular weight of obtained polymers depending on desired properties, and thus to arrive at the instant claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tatyana Zalukaeva whose telephone number is (703) 308-8819. The examiner can normally be reached on 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (703) 308-2450. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.

Tatyana Zalukaeva, Ph.D.
Primary Examiner
Art Unit 1713

October 24, 2003